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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,844	09/28/2001	Shahram Mihan	0050/50536	7068

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WASHINGTON, DC 20036

EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 01/23/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,844

Applicant(s)

MIHAN ET AL.

Examiner

Caixia Lu, Ph.D.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-12, drawn to a polymerization process in the presence of a tridentate catalyst.

Group II, claim(s) 13, drawn to an olefin polymer.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the tridentate catalyst composition technical feature is not in the olefin polymer of Group II.

3. A telephone call was made to Attorney Herbert Keil on January 16, 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. During a telephone conversation with Attorney Jason Voight on January 17, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claim 13 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

6. The disclosure is objected to because of the following informalities:

(i) page 3, line 43, "D" in structure "-Z-D" is a monovalent group, therefore, it is incorrect to define "D" by divalent groups of "NR¹⁶", "O", and "S".

(ii) page 4, line 46 to page 5, line 2, the section of "if D is covalently bonded to the metal center M...X=oxygen" should be deleted because "D" is part of R¹-R³ or B¹-B³ groups and those groups are not bonded to metal M according to formula I.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2

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- Corrected but not properly Withdraw* →
- (i) Page 24, line 8, the phrase "D is a" is extraneous and should be deleted.
 - (ii) Page 24, line 11, "D" in structure "-Z-D" is a monovalent group, therefore, it is incorrect to define "D" by divalent groups of "NR¹⁶", "O", and "S".

(iii) Page 25, lines 14-18, the section of "if D is covalently bonded to the metal center M...X=oxygen" should be deleted because "D" is part of R¹-R³ or B¹-B³ groups and those groups are not bonded to metal M according to formula I of Claim 1.

Claim 5

"D" in structure "-Z-D" is a monovalent group, therefore, it is incorrect to define "D" by divalent groups of "O" and "NR¹⁶".

Claim 11

The term "if desired" is unclear in that it is subjective as to when an element would be desired.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tani et al. (JP 10-231317).

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The instant claims are directed to an olefin polymerization process in the presence of a tridentate cyclic ligand with at least one substituent having a donor function.

The Examples 2 and 7 of Tani teaches an ethylene polymerization in the presence of a catalyst composition containing vanadium (III) chloride-1,3,5-triisopropylhexahydro-1,3,5-triazine or chromium (II) chloride-1,3,5-triisopropylhexahydro-1,3,5-triazine, and the activator is tris(pentafluorophenyl)boron. Tani's working examples meets all of the limitation of the instant claims except that cyclic nitrogen-tridentates of the vanadium complexes in Tani's working examples does not have substituent which having a donor function. However, Tani does expressly teach that, in the cyclic polyamine of formula (1), R can be a substituted hydrocarbon group and the exemplified substituent groups are hydrocarboxy, hydrocarbylamino and hydrocarbylthio groups (page 5-6, paragraphs [0006] to [0008]).

Therefore, it would have been obvious to a skilled artisan at the time the invention was made to employ Tani's teaching to provide cyclic nitrogen-tridentate containing transition metal complexes wherein the R group of the cyclic nitrogen-tridentate contains a substituent such as hydrocarboxy, hydrocarbylamino or hydrocarbylthio group because such ^{is} within the scope of Tani's generic disclosure and all of the embodiments of the reference are expected to work and in the absence of any showing of criticality and unexpected results.

It is also noted that Tani does not teach an olefin polymerization process in the presence of the cyclic nitrogen-tridentate containing transition metal complexes together

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with another conventional catalyst of instant Claim 11. While the indicated limitations are not in the cited prior art, the examiner takes official notice that using two catalysts in olefin polymerization to provide an olefin polymer with broad multi-model molecular weight distribution is a generally known practice in the art. Therefore, it would also have been obvious for a skilled in the art to use Tani's catalyst in combination with a conventional catalyst such as a metallocene catalyst to provide a polyolefin with broad multi-model molecular weight distribution unless there is showing of criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (703) 306-3434. The examiner can normally be reached on 9:00 a.m. to 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1193.



Caixia Lu, Ph.D.
Primary Examiner
Art Unit 1713

CL
January 17, 2003